REMARKS

Claims 1, 2, 7, and 13 have been amended. No claims have been canceled. No new claims have been added. Claims 1-24 are pending.

Claims 1-16 and 20-24 stand rejected under 35 U.S.C. 102(e) as being anticipated by Fu (U.S. Patent No. 6,370,271). Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fu. Claim 17 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fu in view of Hasuo (U.S. Patent No. 5,583,614). Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fu in view of Funada (U.S. Patent No. 5,257,119). These rejections are respectfully traversed.

Claims 1, 2, 7, and 13 each recite, *inter alia,* an apparatus or recording medium containing code which causes an apparatus to detect a non-circular target pattern, i.e., a pattern which does not include a circular perimeter. Claim 14 recites, *inter alia,* "inputting said non-circular reference image." Support for these amendments may be found in the exemplary target images illustrated by Figs. 2, 5A, and 7, and page 15, lines 7-20.

Fu is directed to an image processing apparatus and method for recognizing circular patterns. Fu discloses an embodiment more suitable for a software implementation and another embodiment more suitable for a hardware implementation. Column 6, lines 55-59. Significantly, both embodiments are directed at recognizing a particular type of image, namely, a circular image, i.e., an image having a circular perimeter. For example, Fu discloses:

> The underlying pattern detection algorithms of the present invention for the pattern recognition module 41 are targeted at recognizing patterns on a document. These patterns conform to a certain pattern type that is described below.

...

> An example of the basic pattern type which the pattern recognition module 41 is adapted to recognize is shown in FIG. 3. This basic pattern type comprises a relatively large circular element having a boundary defined by two concentric circles and a middle region shown in black in the figure with some specific image content inside the boundary.
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> Fu, column 5, lines 57-67.

Fu subsequently discloses:

> The goal of the present invention is to detect patterns of the basic type shown in FIG. 3 from a bitmap image provided by any digital image aqcquisition device such as scanner 12. To do this, the inventors have developed algorithms directed at detecting such patterns which are preferably implemented in a copier system.
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> Fu, at column 6, lines 16-21.

Indeed, when Fu discusses its embodiments, a fundamental feature of its algorithms is to first detect the circle which forms the external circular perimeter of the specific type of images which Fu is designed to detect. More specifically, Fu discloses:

> After a predetermined number of rows of data are thresholded and stored (usually around 8-12 rows), an edge-based circle finding procedure is applied to the thresholded data using an edge filter and a curve detector 52 to determine if portions of a circle from the scanned data is detected (step 603).
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> Fu at column 7, lines 26-31.
>
> If so, circle checker and template generator 54 calculates the coordinates of the circle center and determines if this information corresponds to an existing circle or a new circle. (step 605).

> Fu at column 7, lines 37-41.
>
> Note that if the presence of, say, R reference patterns are targeted for detection in the scanned output, structural rules database 53 will contain R sets of circle geometry information. Furthermore, if the circle checker 54 needs to be scale invariant, then the structural rules database 53 will contain circle geometry information for each of the scales at which the circles will need to be detected.
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> Fu at column 7, lines 44-51.
>
> If a portion of the circle has been detected in step 605, additional rows of thresholded data are obtained, as necessary, to obtain an area of thresholded data large enough to contain the full circular element including the boundary and the specific image pattern contained inside ht boundary. The circle checker and template generator 54 then partitions the full circular element into sectors and maintains a density count for each sector.
>
> Fu at column 7, lines 59-66.

As demonstrated by the quoted passages, a fundamental aspect of Fu's algorithm is directed to discovering and managing circular elements. This is because Fu is only capable of detecting circular images similar to the image illustrated by Fu at Fig. 3, that is, an image which is bounded by a solid circular perimeter. Fu's algorithm identifies each circle as a candidate for the circular perimeter, and then performs an analysis of the image within the candidate circular perimeter to determine whether it corresponds to the specific pattern to be detected. The hardware based embodiment of Fu is similar to the software embodiment in that it is based upon detecting circles and analyzing images within each detected circle. Columns 9-11.

Fu therefore fails to disclose or suggest any type of apparatus, method, or recording medium containing instructions to cause an apparatus to detect a "non-circular" target image as recited by independent claims 1, 2, 7, and 13. Fu similarly fails

to disclose or suggest a method for detecting a "non-circular" reference image including the step of inputting said "non-circular" reference image, as recited by claim 14.

The Office Action additionally cites to Hasuo and Fundada, however, the above quoted limitations of the independent claims are also not disclosed or suggested by these additional references, whether taken alone or in combination with Fu.

Claims 1, 2, 7, 13, and 14 are believed to be allowable over the prior art of record. Dependent claims 3-6, 8-12, 15-24 are also believed to be allowable for at least the same reasons as the independent claims.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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